

## CLAIMS

### What is claimed is:

1. A computer program product in a computer usable medium for performing testing of a simulated direct access storage device in a testing simulation environment, said computer program product comprising:
  - instructions on the computer usable medium for providing a software representation of a plurality of hardware components within said simulated direct access storage device;
  - instructions on the computer usable medium for providing a control program module within said testing simulation environment, wherein said control program module interacts with said software representation of said plurality of hardware components;
  - instructions on the computer usable medium for providing a testing program for interacting with said control program module and said software representation of said plurality of hardware components;
  - instructions on the computer usable medium for, in response to detection of an occurrence of a pre-selected event within said simulated direct access storage device, sending one or more codes from said testing program to said software representation of said plurality of hardware components; and
  - instructions on the computer usable medium for determining whether or not a response by said control program module to said one or more codes is correct.
2. The computer program product of Claim 1, wherein said plurality of hardware components comprises a microprocessor.
3. The computer program product of Claim 1, wherein said one or more codes represent a hardware error event.

4. The computer program product of Claim 1, wherein said one or more codes represent a software error event.
5. The computer program product of Claim 1, wherein said testing program is a behavior simulation program.
6. The computer program product of Claim 1, wherein said one or more codes comprise one or more predefined stimuli and one or more debug instructions.
7. The computer program product of Claim 1, wherein said testing program simulates said plurality of hardware components processing said one or more codes in real-time.
8. The computer program product of Claim 1, wherein said control program module comprises a control program-under-development for use with a direct access storage device.
9. The computer program product of Claim 1, wherein said one or more codes target one or more elements of said control program module.
10. The computer program product of Claim 1, wherein said one or more codes target one or more elements of said plurality of hardware components.
11. The computer program product of Claim 1, wherein said pre-selected event comprises a return value of a sector read matching a predefined value.
12. The computer program product of Claim 1, wherein said pre-selected event further comprises a simulated memory register in said plurality of components reading a predefined value.

13. The computer program product of Claim 1, wherein said instructions for sending further comprise instructions for writing a value to a memory register in said plurality of components.
14. The computer program product of Claim 1, wherein said instructions for determining further comprise instructions for recording said response.
15. The computer program product of Claim 1, wherein said one or more codes are stored in a testing event script file data structure.
16. The computer program product of Claim 1, wherein said instructions for determining further comprise instructions for reporting said response to one or more items of user I/O.
17. The computer program product of Claim 1, wherein said pre-selected event includes the passage of a predefined length of time.
18. The computer program product of Claim 1, wherein said pre-selected event comprises a return value of a sector read not matching a predefined value.
19. The computer program product of Claim 1, wherein said pre-selected event comprises said control program module executing a pre-selected instruction.

20. A computer program product in a computer usable medium for performing testing of a simulated direct access storage device in a testing simulation environment, said computer program product comprising:

instructions on the computer usable medium for providing a software representation of a plurality of hardware components, said plurality comprising a microprocessor and one or more application-specific integrated circuits within said simulated direct access storage device;

instructions on the computer usable medium for providing a control program module, comprising a control program under development for use with a direct access storage device, within said testing simulation environment, wherein said control program module interacts with said software representation of said plurality of hardware components;

instructions on the computer usable medium for providing a behavior simulation testing program for interacting with said control program module and said software representation of said plurality of hardware components in real time;

instructions on the computer usable medium for, in response to detection of an occurrence of a pre-selected value in a pre-selected register within said simulated direct access storage device, sending one or more codes, said codes comprising error messages simulating a hardware error event and debug instructions, from a testing script file data structure associated with said testing program to said software representation of said plurality of hardware components by writing said codes to a memory register in said plurality of components;

instructions on the computer usable medium for determining whether or not a response by said control program module and said plurality of hardware components, to said one or more codes is correct;

instructions on the computer usable medium for recording said response;

instructions on the computer usable medium for reporting said response to one or more items of user input/output hardware.